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What is the One?

Topic

Fractional parts and relationships

Key Question

Why do you need to know what the one is when working with fractions?

Learning Goals

Students will:

1. identify relationships in fractions, and
2. explain how relationships change when the one changes.

Guiding Document

*NCTM Standards 2000**

- *Develop understanding of fractions as parts of unit wholes, as parts of a collection, as locations on number lines, and as divisions of whole numbers*
- *Use models, benchmarks, and equivalent forms to judge the size of fractions*
- *Build new mathematical knowledge through problem solving*

Math

Fractions

Problem solving

Integrated Processes

Observing

Comparing and contrasting

Communicating

Recording data

Problem-Solving Strategies

Write a number sentence

Use manipulatives

Materials

Pattern blocks (see *Management 1*)

What is the One rubber band book (see *Management 3*)

Background Information

The identification of the *one* or the unit whole is a big idea in the study of fractions and fractional relationships. In order for the students to be able to identify fractional parts, they need to be able to identify the whole or the one. In this experience, students will be exploring fractional relationships using pattern blocks. The students will use the hexagon, the trapezoid, the blue rhombus, and the equilateral triangle from the traditional pattern block set. If the

AIMS fractional pattern block pieces are available, the students can use these to explore other fractional relationships.

Management

1. For each student group, you will need three hexagons, two trapezoids, three blue rhombuses, and six equilateral triangles.
2. Student groups of two work well for this activity.
3. A rubber band book is constructed by folding the student pages in half horizontally and vertically, nesting them so the pages go in order, and holding them together with a number 19 rubber band.

Procedure

1. Ask the *Key Question* and state the *Learning Goals*.
2. Place a hexagon pattern block piece on the surface of the overhead projector and tell the students that the value of the piece is one. Place a trapezoid on the surface of the projector, and ask the students what the value of the trapezoid would be if the hexagon is the one. (The students should tell you that the trapezoid is one-half if the hexagon is the one, or the whole, since it would take two identical trapezoids to make one hexagon.)
3. Place other pattern block pieces on the overhead and have the students identify their values if the hexagon is the one.
4. Place the trapezoid on the overhead and tell the students that this is now the one. Place the hexagon back on the overhead and ask them what the value of the hexagon would be. [The students should be able to state the value of the hexagon is now two.]
5. Distribute the rubber band book *What is the One?* Direct the students to record relationships about the one listed on each page.

Connecting Learning

1. Why is it important to know what the one is?
2. How can a hexagon have different values?
3. What other “ones” do we use in our lives? [a cup, a foot or a yard, other units of measurement, etc.]
4. How did recording your observations help you in this activity?
5. How would you describe how the “one” is related to fractions?

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What is the One?

Key Questions

Why do you need to know what the one is when working with fractions?

Learning Goals

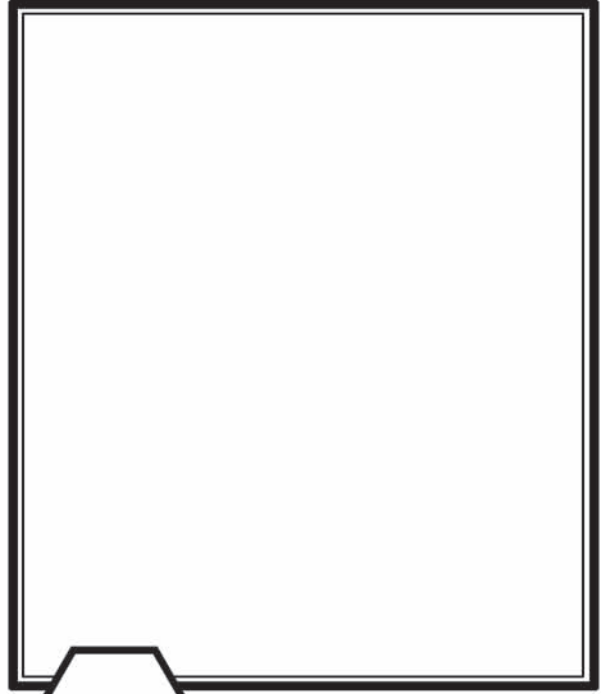
Students will:

1. identify relationships in fractions, and
2. explain how relationships change when the one changes.



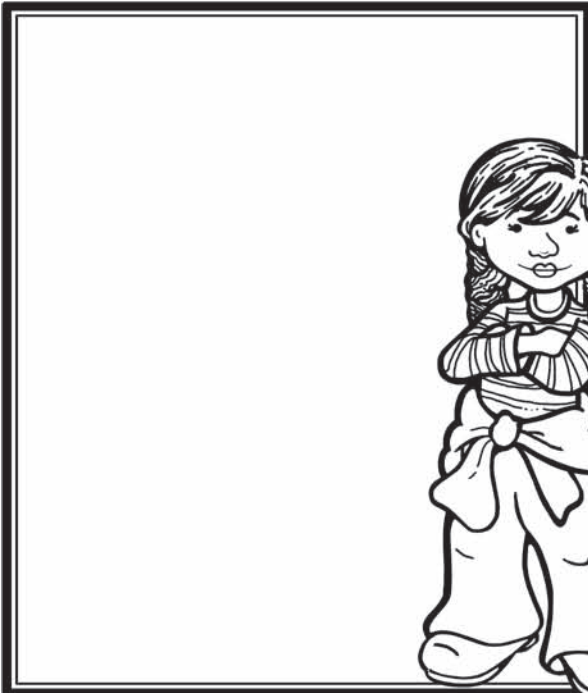


You name the ONE and tell about other relationships.

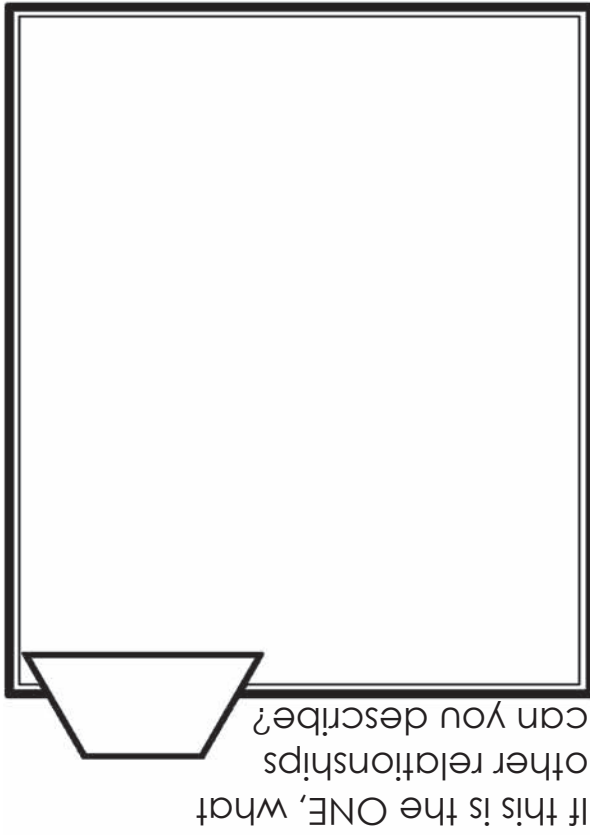


If this is the ONE, what other relationships can you describe?

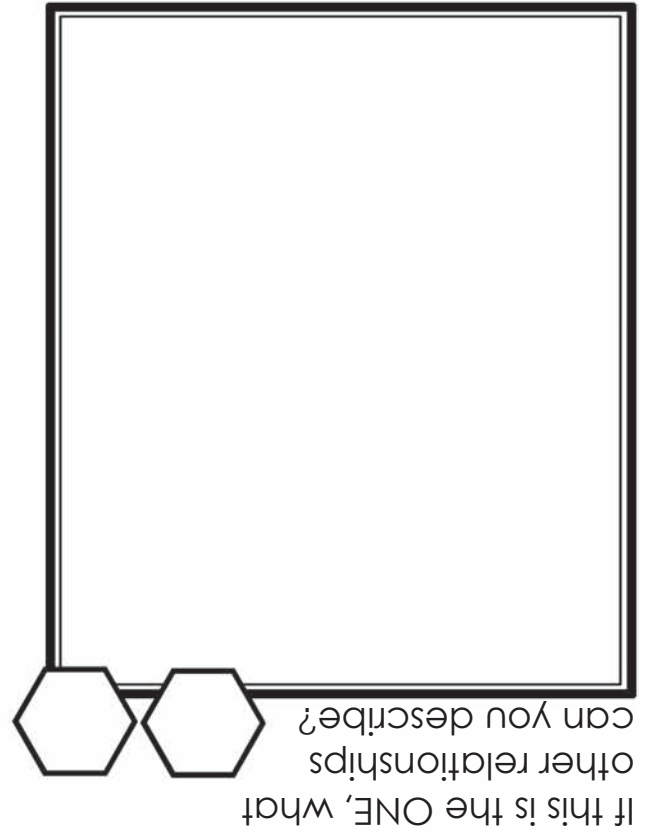
Tell what you learned about fractions by doing this activity.



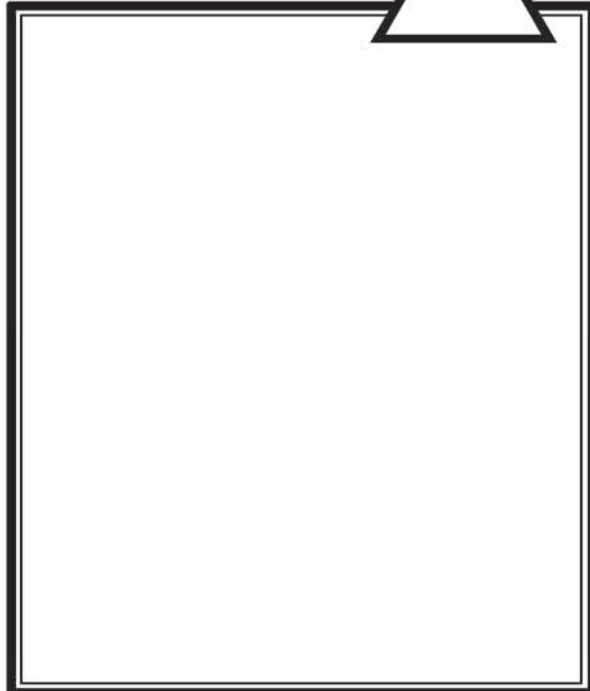
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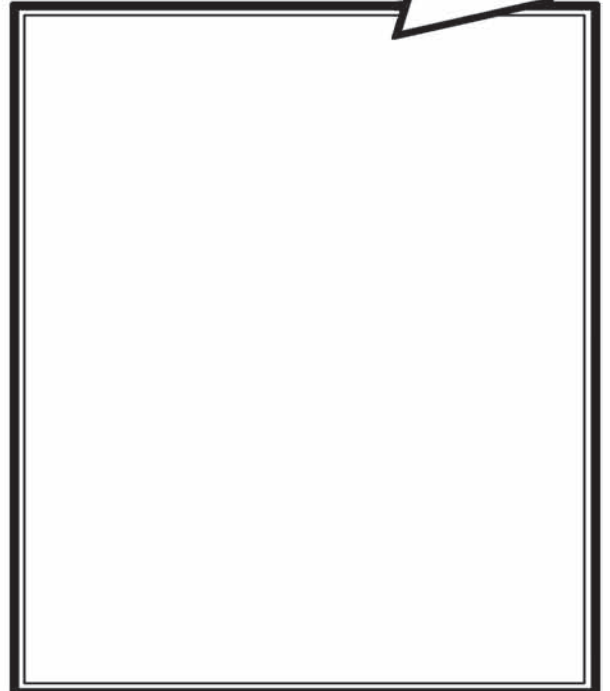
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If this is the ONE, what other relationships can you describe?



If this is the ONE, what other relationships can you describe?



What is the One?

Connecting Learning

1. Why is it important to know what the one is?

2. How can a hexagon have different values?

3. What other “ones” do we use in our lives?

4. How did recording your observations help you in this activity?

5. How would you describe how the “one” is related to fractions?